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AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A computer-implemented compressed-code generating method that is used for compressing information, ~~including letters, numbers, sound or images,~~ the method comprising:

receiving a binary code bit string {y} which represents data, sound or images;

~~a first step of obtaining first and second bit strings {y}₁ and {y}₂ respectively from a the binary code bit string {y}, which represents information to be compressed;~~

~~a second step of defining a quantized initial value Y(0) by giving a binary weight to the first bit strings {y}₁;~~

~~a third step of obtaining an internal status x(0) using the quantized initial value Y(0) and n in a right-hand side of an inverse conversion transform of in-phase conversion isomorphic transform and quantization expression, $x(0) = \{\sin \pi Y_n(0) / 2^{n+1}\}^2$ (where n is a quantized resolution of the first bit string);~~

~~a fourth step of substituting the obtained internal status x(0) in a right-hand side of an inverse calculation expression of a logistic map, $x(t-1) = (1 \pm (1-x(t))^{1/2})/2$ (where t is a discrete time), and selecting a sign of positive or negative in the right-hand side of the inverse calculation expression according to a binary value of the second bit string {y}₂, thereby obtaining a past retroactive internal status, the fourth step being the substituting and selecting steps sequentially executed by the number of bits of the second strings {y}₂; and~~

~~a fifth step of generating a compressed code Y(- τ) by using a resultant internal status x(- τ) obtained at the fourth step and m in a right-hand side of an in-phase conversion isomorphic transform and quantization expression, $Y(-\tau) = 2/\pi \times \arcsin(x(-\tau))^{1/2} \times 2^m$ (where~~

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~~m is a newly defined quantized resolution of the second bit string newly defined for the above n, and τ is a discrete time newly defined for the above t);~~ and

outputting the compressed code $Y(-\tau)$,

wherein a length of the compressed code $Y(-\tau)$ is less than a length of the bit string $\{y\}$.

2. (Currently amended) A computer-implemented compressed-code expanding method that is used for restoring and expanding the compressed code $Y(-\tau)$ generated by using the compressed-code generating method recited in Claim 1, the method comprising:

receiving the compressed code $Y(-\tau)$;

~~a sixth step of obtaining the internal status $x(-\tau)$ using the compressed code $Y(-\tau)$ and n in an inverse conversion~~ transform expression of in-phase conversion isomorphic transform and quantization, $x(-\tau) = \{\sin \pi Y(-\tau) / 2^{n+1}\}^2$;

~~a seventh step of obtaining an internal status using the internal status $x(-\tau)$ in a right-hand side of forward calculation expressions of a logistic map~~

$$x(t+1) = 4x(t)\{1 - x(t)\} \quad \dots(1)$$

$$x(t) = x(t + 1) \quad \dots(2)$$

~~the seventh step being which is executed repeatedly up to an internal status $x(0)$;~~

~~an eighth step of restoring and expanding the second bit string $\{y\}_2$ by sequentially using the internal status $x(t)$ obtained at the seventh step and m in a right-hand side of an in-phase conversion~~ isomorphic transform and quantization expression, $Y(t) = 2/\pi \times \arcsin(x(t))^{1/2} \times 2^m$; and

~~a ninth step of restoring and expanding the first bit string $\{y\}_1$ by sequentially using the internal status $x(0)$ obtained at the seventh step and m in the right-hand side of the in-phase conversion~~ isomorphic transform and quantization expression; and

outputting the restored first bit string $\{y\}_1$ and second bit string $\{y\}_2$.

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3. (Previously presented) The computer-implemented compressed-code generating method of claim 1 wherein the sign of the right-hand side of the inverse calculation expression of the logistic map is positive when the value of the second bit string is 1 and negative when the value is 0.